



Source Water Assessment Program (SWAP) Report For The International, Inc. (Draft)

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date DRAFT Prepared:
January 26, 2001

Table 1: Public Water System (PWS) Information

PWS NAME	The International
PWS Address	P.O. Box 215
City/Town	Bolton, Massachusetts
PWS ID Number	2034004
Local Contact	Ronald Milenski
Phone Number	(978) 779-6911

Well Name	Source ID#	Zone I (in feet)	IWPA (in feet)	Source Susceptibility
Well #3	2034004-03G	100	409	Moderate
Well #4	2034004-04G	235	578	High
Well #5	2034004-05G	105	424	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The International, Inc gets its water supply from three (3) bedrock wells located on the premises. The bedrock Wells #3, #4, and #5 are 330, 110 feet deep. Well #3 has a Zone I of 100 feet and an Interim Wellhead Protection Area (IWPA) of 409 feet; Well #4 has a Zone I of 235 feet and an IWPA of 578 feet; and Well #5 has a Zone I of 105 feet and an IWPA of 424 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. **The actual recharge area to the well may be significantly larger or smaller than the IWPA.** The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA. **The water from Well #5 is treated to remove iron.** For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at <http://www.epa.gov/enviro/html/sdwis/sdwisquery.html>.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone Is;**
2. **An Underground Storage Tank (UST) with Heating Oil;**
3. **Septic system;**
4. **Landscaping and lawn care; and**
5. **Wastewater treatment plant.**

The overall ranking of susceptibility to contamination for the wells is High for Well #4 and Moderate for Well #3 and #5, based on the presence of at least one high threat land use or activity in the IWPA of Well #4, and all moderate threat land use or activity in the the IWPAs of Well #3 and Well #5, as seen in Table 2.

1. **Zone Is** – Currently, the wells do not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The **facility's** Zone I contains **buildings, access roads, parking areas, and recreational activities.** The public water supplier does not own and/or control all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- V Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- V Do not use or store pesticides, fertilizers or road salt within the Zone I.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Fuel Storage Below Ground	No	Well #4	High	Heating oil tank
Parking lot, driveways & roads	All wells	All wells	Moderate	Limit road salt usage and provide drainage away from wells
Septic System	No	Well #4	Moderate	See septic systems brochure in the appendix
Landscaping & lawn care	All wells	All wells	Moderate	Fertilizer and pesticide use
Wastewater treatment plant	No	Well #4	Moderate	
Structures	All Wells	All Wells	-	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

2. **Underground Storage Tank (UST) with heating oil** – An UST with heating oil is within the IWPA of Well #4. If managed improperly, USTs can be a potential contaminant source due to leaks or spills of the chemicals they store.

Recommendations:

- ✓ Comply with all provisions of the regulations regarding USTs. Consult with the local fire department for any additional local code requirements regarding USTs.
- ✓ Any modifications to the USTs must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements.
- ✓ To learn more please visit: <http://www.state.ma.us/dfs/ust/faq.htm>

3. **Septic system** – The septic system is pumped biannually. If improperly used and maintained, septic systems are a potential source of microbial and non-microbial contamination in groundwater and the water supply.

Recommendations:

- ✓ Maintenance staff should be instructed on proper disposal of spent household chemicals.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

4. **Landscaping and Lawncare** - Fertilizer is applied to the lawn that is located within the Zone I and IWPA. Fertilizers and pesticides, if improperly applied or stored, can be potential sources of contamination to the water supply.

Recommendations:

- ✓ Do not use fertilizers or pesticides in the Zone I.
- ✓ Use best management practices when applying fertilizer in the IWPA.

5. **Wastewater treatment plant** - The facility does have a working wastewater treatment plant on-site. Although there are no records of problems at the site, wastewater overflows are a potential source of microbial and non-microbial contamination if improperly managed.

Recommendations:

- ✓ Ensure that any overflows discharge outside of the protection areas.
- ✓ Operate and maintain the wastewater treatment facility according to DEP requirements.

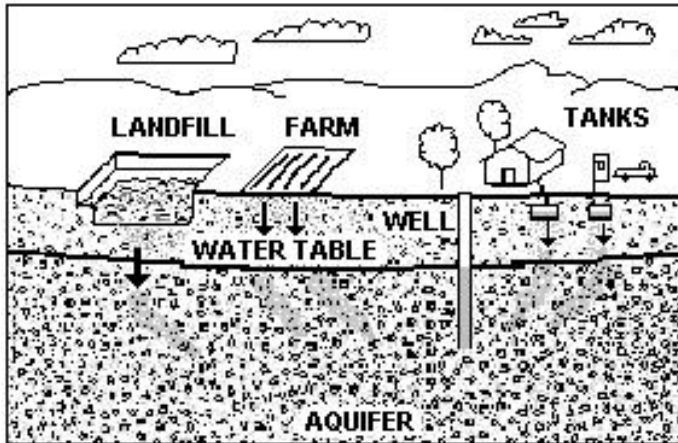


Figure 1: Example of how a well could become contaminated by different land uses and activities.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the wells' susceptibility to contamination. The International, Inc. should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at (508) 792-7650 x 5030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, and the local media.

that would prohibit potentially threatening activities or a right of first refusal to purchase the property.

- ✓ Do not use or store pesticides, and fertilizers within the Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Post labels as appropriate on raw materials and hazardous waste.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/bwp/dhm/dhmpubs.html.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.

Planning:

- ✓ Work with local officials in Boxboro to include the **facility IWPA** in **Aquifer Protection District Bylaws** and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- **Your Septic System Brochure**
- **Pesticide Use Factsheet**